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BEFORE THE ARIZONA CORPORATION COMMISSION

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CARL J. KUNASEK
Commissioner-Chairman
JIM IRVIN
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IN THE MATTER OF THE GENERIC INVESTIGATION OFHTE DEVELOPMENT OF A RENEWABLE PORTFOLIO STANDARD AS A POTENTIAL PART OF THE RETAIL ELECTRIC COMPETITION RULES.

DOCKET NO. E-00000A-99-0205

NOTICE OF FILING TESTIMONY OF CLIFFORD A. CATHERS

Arizona Electric Power Cooperative, Inc. ("AEPCO") hereby gives notice that on this date it filed with Docket Control the original and ten copies of the direct testimony of Clifford A. Cathers in this matter. Because of the volumonous mailing list involved, AEPCO is not providing copies of Mr. Cathers's direct testimony to all parties on the mailing list. But, AEPCO will provide copies of Mr. Cathers's direct testimony to any parties who request a copy from undersigned counsel.

RESPECTFULLY SUBMITTED this 30 day of July, 1998.

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DIRECT TESTIMONY OF CLIFFORD A. CATHERS
ARIZONA CORPORATION COMMISSION
DOCKET NO. E-00000A-99-0205

Q. Please state your name, position and business address.

A. My name is Clifford A. Cathers. I am a Resource Planning Engineer with the Arizona Electric Power Cooperative, Inc. (AEPCO). My business address is 1000 South Highway 80, Benson, Arizona 85602.

Q. Please describe your relevant work experience.

A. I have held my current position with AEPCO since November of 1992. Before that I was a Resource and Transmission Planning Engineer for the Dayton Power & Light Company from 1985 to 1992.

Q. For clarity purposes, could you please define some of the terms you'll be using in this testimony and what they refer to?

A. Yes. I will use the terms "Solar Portfolio Standard" to refer to the previous version(s) of the Standard. I will use the terms "New Portfolio Standard" to describe the proposed new rule and the related questions posed by the Utilities Division Staff. I will use the term "green" to describe the entire family of environment-friendly renewable resources that might qualify under the proposed New Portfolio Standard.

Q. Are you familiar generally with the matters that are the focus of this docket?

A. Yes. I participated in the Commission Staff's Solar Portfolio Standard Subcommittee which met several times during 1997. I performed analyses on behalf of AEPCO to provide commentary and supporting documentation for the report that was issued by the Subcommittee.

Q. What is AEPCO's general position regarding the proposed New Portfolio Standard?

A. AEPCO recognizes the social, economic and environmental benefits that renewable technologies and a robust solar industry and/or renewables market could provide to the State of Arizona. AEPCO, however, does not need <u>any</u> new generation in the near term. Any new resources required by the New Portfolio Standard to be added to AEPCO's system violate least-cost principles, drive up system costs and increase rates. Also, since most investments in green resources would likely be financed and amortized – assuming they could be financed - over a period which extends past the 2012 time period encompassed by the New Portfolio Standard, these resources represent additional potential stranded investment.

Particularly due to the Cooperative structure and AEPCO's relationship with its Member-owners, it is probable that AEPCO would be unable economically to support development of a renewable industry in the State and at the same time be competitive. Therefore, instead of mandating a New Portfolio Standard as part of the Retail Electric Competition Rule, AEPCO believes the market should dictate the amount of green product desired.

In light of this, it would be appropriate for the Commission to exclude Electric Cooperatives from the provisions of the New Portfolio Standard given the financial structure of AEPCO and the nature of the relationship between AEPCO and its Member-owners.

If the Commission ultimately determines that offering green power is good public policy, then AEPCO recommends that the Commission encourage utilities or Energy Service Providers (ESPs) to offer green programs, instead of mandating rigid targets with potentially adverse financial implications, allowing the market for renewable products in rural and urban areas to develop naturally.

Q. Please describe the relationship between AEPCO and its Member-owners and how the proposed New Portfolio Standard might affect this relationship.

A. AEPCO is a Generation and Transmission Cooperative - a not for profit entity which has no shareholders. AEPCO's Member Cooperative systems (Anza Electric Cooperative, Duncan Valley Electric Cooperative, Graham County Electric Cooperative, Mohave Electric Cooperative, Sulphur Springs Valley Electric Cooperative and Trico Electric Cooperative) are AEPCO's owners.

Without shareholders and being not for profit, AEPCO and its Member-owners have no venture capital to invest in solar enterprises. We are debt financed. Because these proposed resources are neither needed nor least cost, it is exceedingly unlikely we could even obtain the loan funds to finance them. Moreover, a significant portion of the rural customer owners

AEPCO's Members serve are low income. It is doubtful that AEPCO's capital investment in a statewide, national or international renewables industry would create any new jobs or economic benefit in the service areas our Members serve. The more likely consequence would simply be higher power costs as a result of unnecessary generation. Against this backdrop, I will now respond to the questions posed in the June 16th Procedural Order.

Q. Should there be an Environmental Standard in Arizona and why?

A. No. As previously stated, to require resources that AEPCO's Members do not currently need violates least-cost principles, drives up system costs, constitutes more potential stranded investment and increases rates. Again, AEPCO believes it would be more appropriate for the Commission to encourage utilities and ESPs to offer green programs, instead of mandating rigid targets with potentially adverse financial implications.

Q. If so, what should be the objectives of an Environmental Standard and who should bear the costs of the standard and how should these costs be collected?

A. If an Environmental Standard is imposed we strongly recommend it be imposed only on transactions in the competitive market. Unless the resources can be cost justified as least cost, Standard Offer customers should not have to bear these costs. The primary objective of a voluntary Environmental Standard would be to make available green options to those customers who want them and who would be willing to bear the additional costs.

Q. Will the proposed new Portfolio Standard meet the desired objectives or would you propose an alternative mechanism?

A. No. The New Portfolio Standard will not meet the objective of consumer choice and cost recovery from those who voluntarily elect such options. Because of the differences between Cooperatives and other utilities and ESPs that I have already discussed, Cooperatives should be exempted from the New Portfolio Standard. Instead, Cooperatives could develop programs which offered a choice of green resources to their customers to the extent that demand for such power exists or materializes.

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Q. ***Are you supportive of the proposed Portfolio Standard and, if not, describe any modifications that you would make to the proposed Portfolio Standard (including the responses to 6 below) or describe your Company's proposed alternative mechanism.***

A. Please see the responses to the previous questions.

Q. ***If you are proposing an alternative to the proposed Standard, include a detailed description of: (1) technologies to be included; (2) timing; (3) any incentives; (4) cost projection of the alternative over the life of the alternative; (5) impact on customer rates; and (6) all major assumptions for the proposed alternative.***

A. Because we oppose a mandated standard, we do not have an alternative mandatory program. Instead, ESPs should be encouraged to offer green resources to their customers. All types of technologies could be included. The real benefit is that the customers get to choose <u>when</u> and <u>if</u> they want a renewable product and what they will pay.

Q. ***Should the Standard be imposed only on sales in the competitive market?***

A. As previously stated, AEPCO recommends that a green power alternative be incented, not imposed as a matter of regulation. Furthermore, mandating the New Portfolio Standard on all sales would only exacerbate the problems for AEPCO, its Member-owners and their customer owners as previously described.

Q. ***Instead of implementing a Standard as part of the Retail Electric Competition Rules, should the market (the retail consumers themselves) dictate the amount of "green" power to include in competitive energy choices? Should the Commission encourage Energy Service Providers to offer programs, instead of mandating rigid targets, allowing the market for such products to develop naturally?***

A. Yes to both questions, for all of the reasons previously discussed.

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Q. Would it be appropriate to include recovery of costs of renewable systems in a systems benefit charge rather than the general cost/rate structure?

A. Placing to one side AEPCO's suggested alternatives, the recovery of costs of renewable systems through a systems benefit charge would seem to be a more reasonable methodology for recovering and mitigating the costs of the New Portfolio Standard because it will meet societal objectives of encouraging the development of solar power while allowing utilities to remain competitive until such time as solar costs decrease. AEPCO, however, would restate and emphasize that if competitive market forces required green power sources to be developed, no subsidy through a systems benefit charge would be needed.

Q. Please comment on the following aspects of the proposed New Portfolio Standard: New Section N allows for "environmentally-friendly renewable electricity technologies" other than solar. Which technologies should be included in this subsection? Would those technologies be available in Arizona or work in Arizona?

A. As previously stated, under AEPCO's alternative green programs, we would not preclude from consideration any renewable technology product that customers might express a desire for.

Q. In subsections A and B of the proposed Portfolio Standard, a schedule of portfolio percentages is defined. Is the size of the portfolio percentage and timing of increases a reasonable strategy to be included in the competition rules? What alternatives would you propose and why?

A. While the schedule of portfolio percentages in the proposed New Portfolio Standard is certainly more palatable than in the previous version of the Solar Portfolio Standard, the timing would still require AEPCO and its Member-owners to install approximately 5.3 MW's of renewable technologies in the early years of competition. While this lessens the overall financial burden in respective terms, it doesn't change the impacts previously described and does not change our recommended course of action.

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Q. The proposed Portfolio Standard includes incentives for in-state manufacturing and in-state installation of solar and other environmentally friendly technologies. Are those incentives appropriate and substantial enough to have a positive impact on Arizona's economy and on Arizona economic development? What alternatives would you propose and why?

A. If enough venture capital is invested in the State under the auspices of renewable resources to stimulate an industry, eventually it would have an impact on Arizona's economy. It is also likely, however, that any of the economic benefits that might result from such incentives would be concentrated in metropolitan areas with adequate infrastructure to support the solar manufacturing industry and not in the rural areas AEPCO's Member-owners serve. Consequently, the rural population would see little benefit from their increases in costs for electricity anticipated as a result of a mandatory standard.

Q. What long-term benefits will the proposed Portfolio Standard have on the State of Arizona and its residents? Specific items to be addressed include job creation, maintenance of energy dollars in the local economy, load diversification and pollution prevention.

A. As a Generation & Transmission Electric Cooperative with limited staffing, AEPCO does not have the internal resources to address or evaluate the impacts suggested by this question.

Q. What would the impact be on an average competitive (residential and commercial) customer's monthly bill (assume 1,000 kWh/month usage for residential) of the proposed Portfolio Standard? (Please state assumptions, including technology costs).

A. Because of the differences in climate, geography and economics between the diverse service territories of AEPCO's six Member Cooperatives, the net cost effect on the end-use customers they serve would vary considerably.

For AEPCO's assessment of the compliance costs of the proposed New Portfolio Standard, it was assumed that distributed grid-support solar photovoltaic resources would present the best "fit" for the rural customers our Member-owners serve. The capital cost of such resources by year was assumed to be the following:

2000 - $5,000/kW	2001 - $4,800/kW	2002 - $4,400/kW
2003 - $4,100/kW	2004 – $3,900/kW	2005 - $3,800/kW
2006 – $3,500/kW	2007 - $3,100/kW	2008 - $3,000/kW
2009 - $2,900/kW	2010 - $2,800/kW	2011 - $2,700/kW
2012 - $2,600/kW		

AEPCO utilized the implementation schedule presented in the New Portfolio Standard in concert with the proposed banking scheme and the early installation and in State manufacturing credits to arrive at a least-cost implementation scenario. This scenario resulted in the following schedule of capacity additions (based on an annual capacity factor of 25%):

2000 – 260 kW	2001 – 2,670 kW	2002 – 850 kW
2003 - 890 kW	2004 – 650 kW	

Under this installation schedule and AEPCO's forecast of sales (which can change rather dramatically from month to month), AEPCO could bank sufficient green kWh to cover liabilities from "bank withdrawals" in the 2005 through 2012 period without additional installations.

However, the Net Present Value of this plan in 1999 dollars is approximately $31 million or an annual real dollar expenditure of approximately $1.7 - $2.9 million. AEPCO's Member Cooperatives would then have to pass along those increased costs to their rural customer-owners.

Q. Section 1609.B.2 provides for determination of a cost/benefit point in 2001 prior to an increase in the percentage in 2002. Is it appropriate to determine the cost/benefits point during this proceeding (and the corresponding impact on customers) or in 2001? Should the Commission cap the impact that the Portfolio Standard may have on customers?

A. Once again, AEPCO's alternative whereby the Commission would encourage ESPs to offer green programs rather than mandating rigid renewable targets would render these moot points. Given the rapid change the industry will undergo in the next two years, however, we would suggest determination of the cost benefits point in 2001. Given our recommendations, we do not have a position on the "cap" issue.

Q. Section 1609.I of the proposed Portfolio Standard allows for "banking" or sale of excess solar kWh. This could create a trading program, similar to the EPA's sulfur dioxide trading program. Do you have any suggestions about credit trading or banking program?

A. Only to the extent that AEPCO's analysis of the proposed New Portfolio Standard incorporated a banking mechanism as suggested in this and previous versions of the Solar Portfolio Standard. It is an important mechanism for mitigating some of the high costs of the proposed standard. In AEPCO's case, it encouraged earlier installation of resources (banking solar kWh's in early periods deferred the need for future capacity). This analysis assumed that every additional kWh generated by a renewable resource could be banked and withdrawn at any later date against a future renewable kWh deficiency.

Q. Section 1609.F provides for penalties if ESPs fail to meet the proposed Portfolio Standard. Are there any additional provisions needed to require ESPs to issues RFPs or negotiate contracts in a timely fashion rather than merely paying the penalty?

A. No. Once again, we would stress that AEPCO is required by the Rural Utilities Service (RUS) to issue a solicitation for proposals for all new generation facilities prior to any funding. RUS will only fund needed, least cost facilities. Based on current power requirements and cost estimates, the Portfolio Standard would <u>not</u> qualify for funding.

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Q. Should the proposed standard or any alternative that you are proposing apply to Standard Offer Customers in 2001? If yes, should the standard or alternative as applied to Standard Offer be energy driven (kWh) or dollar driven to limit or cap the impact on Standard Offer Customers? What would the impact be on an average residential and commercial customer's monthly bill? (Please state assumptions, including technology costs.) What mechanism should the Commission put in place to recover the costs from Standard Offer Customers?

A. AEPCO's proposed voluntary alternative to offer green resources would apply to all customers.

Q. Does this conclude your direct testimony?

A. Yes, it does.

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